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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/617,148	07/17/2000	Umesh Maheshwari	07451.0022-00000	8115

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EXAMINER

GURSHMAN, GRIGORY

ART UNIT	PAPER NUMBER
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2132

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,148

Applicant(s)

MAHESHWARI ET AL.

Examiner

Grigory Gurshman

Art Unit

2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The rejection of claims 5, 7 and 9 under 35 USC § 112 (second paragraph) is withdrawn in view of Applicant's amendment of the instant claims.
2. Regarding claims 1-3 and 11-15, Applicant states that examiner has failed to establish a *prima facie* case of obviousness with respect to claim 1, since examiner has not indicated how each of the claimed elements is taught. Examiner respectfully disagrees with this assessment and points out that element-by-element correspondence with teachings of prior art had been established as follows:

The limitation "receiving a block of data for storage ..." is met by data block in Fig.1. The limitation "generating at least one piece of meta-data relating to the block of data" is met by meta-data in Fig.1. The limitation "calculating a first cryptographic hash of at least a portion of the block of data" is met by calculating signature (see block 10 in Fig.1). The limitation "encrypting the block of data and encrypting the meta-data to form one or more uniform blocks of encrypted data" is met by block 16 in Fig.1 and column 3, lines 22-30.

3. Applicant argues that Examiner does not explain how either Barton or Honsinger teaches "storing a cryptographic key in a secret storage medium ...". Examiner points out that it was explicitly stated in the previous office action that the limitation "storing a cryptographic key in a secret storage medium" is met by authentication bureau (column 5, lines 48-53), where keys are stored in a secured medium.

4. Applicant further argues that Barton does not teach that a data block having the embedded meta-data is encrypted. Examiner respectfully disagrees and points out that the data block is encrypted by having coded bitstring embedded into the block.

5. Applicant further argues that the combination of Barton and Honsinger does not render the independent claim 1 obvious. Examiner respectfully disagrees and points out that one of ordinary skill in the art would have been motivated to modify the method of retrieving meta-data from data block and performing at least one of restoring step and authenticating step on data block in accordance with meta-data by calculating and comparing the cryptographic hashes of meta-data as taught in Honsinger for verification of authenticity of received image (see Honsinger, abstract).

6. With respect to claims 4-10, Applicant's arguments also state that examiner has failed to establish a prima facie case of obviousness because examiner does not explain how elements are taught by the prior art. In response to this argument examiner points out that detailed explanation of how the prior art of record is applied to the claims has been provided. Applicant's arguments have been fully considered, but they are not persuasive due to the reasons provided herein

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton (U.S. Patent No. 5,646,997) in view of Honsinger (U.S. Patent No.6,278,791 B1).

9. Referring to the instant claims Barton discloses a method and apparatus for embedding the authentication information within digital data (see abstract). Barton teaches retrieving meta-data from data block and performing at least one of restoring step and authenticating step on data block in accordance with meta-data.

10. Referring to the instant claims, the limitation "receiving a block of data for storage ... " is met by data block in Fig.1. The limitation "generating at least one piece of meta-data relating to the block of data" is met by meta-data in Fig.1. The limitation "calculating a first cryptographic hash of at least a portion of the block of data" is met by calculating signature (see block 10 in Fig.1). The limitation "encrypting the block of data and encrypting the meta-data to form one or more uniform blocks of encrypted data" is met by block 16 in Fig.1 and column 3, lines 22-30. The limitation " storing a cryptographic key in a secret storage medium" is met by authentication bureau (column 5, lines 48-53). Barton, however, does not explicitly teach calculating a cryptographic hash of the meta-data and comparing the hash values of the meta-data.

11. Referring to the instant claims, Honsinger discloses lossless recovery of an original image containing embedded data (see abstract). Honsinger teaches the use of the hash values of the meta-data. Honsinger teaches that the hash value h is directed to a hash value comparator circuit 54 where it is compared to the original hash value recovered from the meta-data. If the hash values are identical, then the recovered

image is declared to be authentic. If they differ, the recovered image (i.e. block of data) is declared to be altered (see column 9, lines 56-60 and Fig.4). Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of retrieving meta-data from data block and performing at least one of restoring step and authenticating step on data block in accordance with meta-data of Barton by calculating and comparing the cryptographic hashes of meta-data as taught in Honsinger. One of ordinary skill in the art would have been motivated to modify the method of retrieving meta-data from data block and performing at least one of restoring step and authenticating step on data block in accordance with meta-data by calculating and comparing the cryptographic hashes of meta-data as taught in Honsinger for verification of authenticity of received image (see Honsinger, abstract).

12. Referring to claim 3, Barton teaches that blocks of data are stored in a relational data-base (see column 2, lines 65-69).

13. Referring to claims 11 and 14 the limitation "indexing information" is met by the meta-data, which indexes the file (i.e. data block).

14. Referring to claim 15, it is well known in the art to use the following types of computer readable medium: CD-ROM, DVD, MINIDISC, floppy disc, magnetic tape etc. One of ordinary skill in the art would have been motivated to use these types of computer readable medium as they are compatible with all of the current computer systems.

15. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton (U.S. Patent No. 5,646,997) in view of Honsinger (U.S. Patent No. 6,278,791 B1) and further in view of Hagersten (U.S. Patent No. 5,862,357).

16. Referring to the instant claims Barton and Honsinger teach creating the uniform blocks of encrypted data (see Fig. 1 of Barton and Fig. 1 of Honsinger). Barton and Honsinger, however, do not explicitly teach generating a hierarchical location map of nodes containing the blocks of data.

17. Referring to the instant claims, Hagersten discloses a symmetrical multiprocessing system includes a plurality of nodes interconnected by a hierarchical bus (see abstract). Hagersten teaches a shared memory system including a plurality of memory locations, wherein the memory locations are allocated to one of a plurality of processing nodes. The memory locations are configured to be accessed by the plurality of processing nodes. The system memory locations map to a plurality of address partitions, whereby the system memory locations are addressed by a plurality of address aliases, and properties of the address partitions dictate which of the processing nodes have access to a data request (see column 2, line 53-63 and Fig. 1). Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to generate the uniform blocks of encrypted data of Barton and Honsinger and generate the hierarchical location map of nodes containing the blocks of encrypted data as taught in Hagersten. One of ordinary skill in the art would have been motivated to generate the uniform blocks of data and generate the hierarchical location map of nodes containing the blocks of data as taught in Hagersten for allowing for the transfer of data

between nodes and for restriction of global transfer of local transactions (see Hagersten, abstract).

18. Referring to claim 6, the limitation "an indicator specifying the location ... of the node" is met by TLB (see Fig.1).

19. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagersten (U.S. Patent No. 5.862.357) in view of Barton (U.S. Patent No. 5.646.997).

20. Referring to the instant claims, Hagersten discloses a symmetrical multiprocessing system includes a plurality of nodes interconnected by a hierarchical bus (see abstract). Hagersten teaches a shared memory system including a plurality of memory locations, wherein the memory locations are allocated to one of a plurality of processing nodes. The memory locations are configured to be accessed by the plurality of processing nodes. The system memory locations map to a plurality of address partitions, whereby the system memory locations are addressed by a plurality of address aliases, and properties of the address partitions dictate which of the processing nodes have access to a data request (see column 2, lines 53-63 and Fig.1).

21. Referring to claim 7, the limitation "generating a hierarchical location map for locating individual ones of the plurality of blocks, the hierarchical location map including a plurality of nodes" is met by system memory locations map (see column 2, lines 53-63 and Figs. 1 and 2). The "location indicators" are met by TLB (see Fig.1). Hagersten discloses a hierarchical system of location of nodes, but he does not explicitly teach that node contain the encrypted data.

22. Referring to the instant claims, Barton discloses a method and apparatus for embedding the authentication information within digital data (see abstract). Barton teaches retrieving meta-data from data block and performing at least one of restoring step and authenticating step on data block in accordance with meta-data. Barton teaches encrypting the data block (see unit 16 in Fig.1 and column 3, lines 22-30) within the processor (i.e. node). Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to generate the hierarchical location map for locating the plurality of data blocks residing in the nodes of Hagersten and use encryption of the data as taught in Barton. One of ordinary skill in the art would have been motivated to generate the hierarchical location map for locating the plurality of data blocks residing in the nodes and use encryption of the data as taught in Barton for enhancing the authentication capability (see Barton, column 4, lines 19-21). Referring to claims 9 and 10, Barton teaches the use of different cryptographic algorithms as signatures are calculated according the block size (see col.7, lines 14-24).

Conclusion

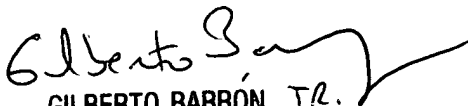
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Grigory Gurshman whose telephone number is (571)272-3803. The examiner can normally be reached on 9 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (571)272-3799. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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